

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

ULTRAVISION TECHNOLOGIES, LLC,

Plaintiff,

v.

HOLOPHANE EUROPE LIMITED,
ACUITY BRANDS LIGHTING DE
MEXICO S DE RL DE CV,
HOLOPHANE, S.A. DE C.V. and
ARIZONA (TIANJIN) ELECTRONICS
PRODUCTS TRADE CO. LTD.,

Defendants.

Case No. 2:19-cv-00291-JRG-RSP
(Lead Case)

YAHAM OPTOELECTRONICS CO., LTD.,

Defendant.

Case No. 2:19-cv-00398-JRG-RSP
MEMBER CASE

SAMSUNG ELECTRONICS CO., LTD.,

Defendant.

Case No. 2:19-cv-00252-JRG-RSP

DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF

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	Ex. [Number]	Exhibit to Declaration of Alfred R. Fabricant in Support of Plaintiff Ultravision Technologies, LLC's Opening Claim Construction Brief (Dkt. No. 96-1)
	Br.	Plaintiff Ultravision Technologies, LLC's Opening Claim Construction Brief (Dkt. 96)
1	'410 Patent	U.S. Patent No. 8,870,410 ³
2	'413 Patent	U.S. Patent No. 8,870,413
3	'738 Patent	U.S. Patent No. 9,734,738
4	'248 Patent	U.S. Patent No. 9,947,248
5	'946 Patent	U.S. Patent No. 10,223,946
6	<i>Lamar Constr.</i>	Preliminary Constructions from <i>Ultravision Technologies, LLC v. Lamar Advertising Co., et al.</i> , C.A. No. 2:16-cv-374 (E.D. Tex.)
8	Coleman Decl.	Declaration of Zane Coleman, Ph.D. Regarding Claim Construction
9	Josefowicz Decl.	Declaration of Dr. Jack Josefowicz With Regard to Certain Claim Constructions
10	Merriam-Webster	Merriam-Webster's Collegiate Dictionary (11 th Ed. 2004)
12	Interior Lighting	Gary Gordon, Interior Lighting for Designers (4 th Ed. 2003)
14	'693 Patent	U.S. Patent No. 8,651,693
17	IES TM-11-00	Illuminating Engineering Society, TM-11-00, Light Trespass: Research, Results, and Recommendations (2000)
A	Coleman Depo.	Deposition of Dr. Zane Coleman, Ph.D., July 7, 2020
B	<i>Lamar Op. Br.</i>	Ultravision's Opening Claim Construction Brief from <i>Ultravision Technologies, LLC v. Lamar Advertising Co., et al.</i> , C.A. No. 2:16-cv-374 (E.D. Tex.)
C	<i>Lamar Coleman</i>	Declaration of Dr. Zane Coleman in support of Ultravision's Reply Claim Construction Brief from <i>Ultravision Technologies, LLC v. Lamar Advertising Co., et al.</i> , C.A. No. 2:16-cv-374 (E.D. Tex.)
D	Lens Design	Rudolf Kinslake and R. Barry Johnson, <i>Lens Design Fundamentals</i> (2d Ed. 2010).

¹ Exhibits I-L are new exhibits in this brief because relevant portions cited herein were not included in exhibits to Plaintiff's brief.

² In this brief, all emphases are added unless otherwise stated.

³ In this brief, Samsung takes no position as to the proper constructions of terms recited in the '413, '946, '738 and '248 patents. Yaham takes no position as to the proper constructions of terms recited in the '946 patent. Holophane takes no position as to the proper constructions of terms recited in the '738 and '248 patents.

E	Academic Press	Academic Press Dictionary of Science and Technology (1992)
F	OAAA	Outdoor Advertising Association of America (OAAA), <i>LED Lighting Guidance for Outdoor Advertising Owners and Operators</i> (Aug. 29, 2013)
G	'803 Patent	U.S. Patent No. 9,212,803
H	<i>Lamar</i> Markman Tr.	Transcript of Claim Construction hearing in <i>Ultravision Technologies, LLC v. Lamar Advertising Co., et al.</i> , C.A. No. 2:16-cv-374 (E.D. Tex.)
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J	Josefowicz Depo.	Deposition of Jack Josefowicz, Ph.D., July 7, 2020
K	'410 Amend.	June 5, 2014 Amendment in U.S. Pat. App. 13/836,612
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I. INTRODUCTION

A recurring theme of Ultravision’s Opening Brief is to argue for non-constructions or broad constructions, thereby permitting Ultravision to pursue infringement against a wide variety of outdoor lighting products. Ultravision’s arguments are wholly divorced from the intrinsic record and in many instances, the claim language itself. It also is telling that Ultravision’s arguments are divorced from the very arguments it made to this Court in *Ultravision Technologies, LLC v. Lamar Advertising Co., et al.*, C.A. No. 2:16-cv-374 (E.D. Tex.) (“*Lamar case*”), which involved the same families of patents that shared a common specification with the Patents-in-Suit. In contrast to this case, Ultravision argued in the *Lamar case* that the patented technology was unquestionably limited to LED lighting for signs (*e.g.*, billboards):

The Patents-in-Suit relate to LED lighting assemblies for billboards.... Generally speaking, the asserted claims speak to the illumination of billboards with LED lighting assemblies. The asserted claims relate to the LED lighting assemblies used to light the billboards as well as the optical elements (*i.e.*, lenses) used in the LED lighting assemblies to create uniform illumination of the billboard surface.

The patented technology provides a number of benefits—both in the quality and economics of billboard lighting. Ultravision’s improved LED light designs were a significant departure from prior approaches to addressing problems unique to LED lights. Ultravision’s designs use novel optical elements (lenses) to direct the light emitted from LEDs to light the billboard, as opposed to using reflective mirrors or other ways of aiming light. Ultravision’s LED billboard lights uniformly distribute light from a number of LEDs onto the flat surface of a billboard to minimize “hot spots” or “dark spots,” which are areas of a billboard that are brighter or darker, respectively, than other areas of the same billboard in low light conditions and at night. Both “hot spots” and “dark spots” limit the very purpose of billboard advertising—visibility and legibility of the advertising content, both written and visual. Ultravision’s LED billboard lights also reduce light spillage beyond edges of the billboard, which not only conserves energy but also limits irritating or environmentally undesirable light pollution. Finally, Ultravision’s LED billboard lights overcame the life shortening problem of dissipating the substantial heat generated by the LEDs.

Lamar Op. Br. at 1-2. Ultravision’s present attempts to broaden the scope of the claims beyond the patent’s disclosure, and their previous statements in the *Lamar* case, invite reversible error; only serve to make the disputed terms less clear; and should be rejected.

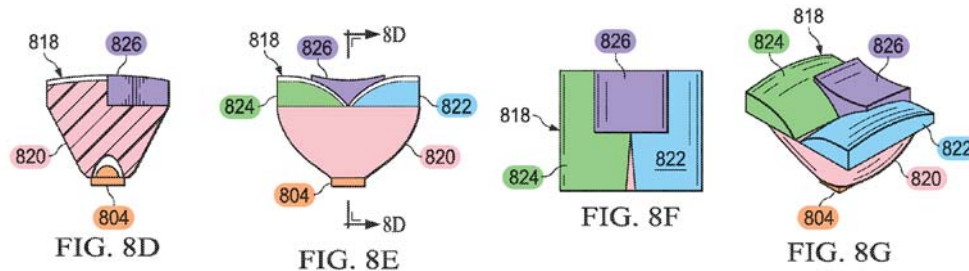
II. DISPUTED TERMS

A. “[each of the plurality of optical elements comprises] a first lens element and a second lens element disposed over the first lens element”

The crux of this dispute is the meaning of “lens element.” Based on Ultravision’s infringement contentions and as its Opening Brief implies, Ultravision contends that a lens element is so broad that it includes the inner or outer surface of a lens. In other words, Ultravision’s contention equates this entire claim phrase with a single lens, *i.e.*, an optical element comprising one lens elements disposed over another lens element is merely a single lens with an inner and outer surface. Defendants, in contrast, propose that a “lens element” is a distinct lens structure and that an optical element has two such lens structures, *i.e.*, “[each of the plurality of optical elements comprises] a lens with two optical surfaces placed or arranged on another lens with two optical surfaces.” Defendants are correct because their construction is consistent with both the plain meaning and the intrinsic record.

The Patents-in-Suit use the term “lens element” only in connection with the embodiment of Figures 8A-J. In that embodiment, “lens element” refers to a single lens with two optical surfaces and an “optical element” refers to multiple lens elements, with one lens element disposed over another, as claimed. As the specification explains, “[a]s shown in FIGS. 8D-8H, a single optical element 806 [shown in Figures 8A-C] may include multiple lens elements designed to distribute the illumination provided by a single LED 804” and “a first lens element 820 may be positioned proximate to the LED 804, and additional lens elements 822, 824, and

826 may be positioned above the lens element 820.” ’410 Patent at 8:6-13, FIGs. 8D-8G. This multiple lens configuration is needed to achieve the desired light distribution. *Id.*



Notably, the “lens elements” are not merely two surfaces of the same lens. Rather, as illustrated in each of these figures, the lens elements are discrete lenses. Accordingly, this embodiment discloses an optical element comprising multiple, discrete lenses (*i.e.*, lens elements) configured one over the other to form the optical element, consistent with the disputed claim language and Defendants’ construction.⁴

Astonishingly, Ultravision’s Opening Brief ignores the embodiment illustrated in Figures 8A-J, even though this is the only embodiment described as having a “lens element.” Instead, Ultravision focuses on the embodiment of Figures 5A-D. While the specification’s description of those figures does not refer to a lens element, the description actually supports Defendants’ construction, not Ultravision’s.

While Figures 5A-D depict a “lens panel” that “may include multiple optical elements” (’410 Patent at 4:64-65), the patent never uses the term “lens element” to describe any component of these figures. Ultravision suggests surfaces of the lenses in Figures 5A-D are lens

⁴ To the extent that Ultravision replies with an argument regarding cross-hatching, as it did in the *Lamar* case, that argument is not relevant because the claims cover an optics panel, not a method of manufacturing. *Lamar* Coleman at 3-6. Likewise, most figures do not include any cross hatching and those that do, use different cross hatching for different lens elements. *See, e.g.*, Fig. 8D (depicting vertical cross hatching for one lens element and diagonal cross hatching for the other).

elements (Br. at 11-12), but the specification describes these as “surfaces,” not “lens elements.” ’410 Patent at 5:43-48. Thus, where the patentee intended to reference a lens surface, it did so explicitly. And when the patentee wanted to describe separate lenses (*i.e.*, “lens elements”) that are combined to form an optical element, it also did so explicitly. *Id.* at 8:16-14. Ultravision’s effort to conflate these two terms contradicts the patents.

Defendants’ construction is also consistent with the plain meaning. A “lens element” (or “element”) “always refers to a single piece of glass having polished surfaces.” Lens Design, 2. The reason a single lens piece is referred to as a “lens element”—as opposed to a “lens”—is that “a complete lens [] contains one or more elements.” *Id.* For example, in a lens, “lens elements are often cemented together.” *Id.*, 5. Indeed, some scientific dictionaries reserve the term “lens element” for the situation when referring to a “single lens within a multi-lens system” (*i.e.*, as shown in Figures 8A-J, but not 5A-D, in the patents). Academic Press, 1226.

Ultravision’s overly expansive reading of “lens element” to include the mere surface of a lens is inconsistent with the plain meaning of the term and is not supported by the intrinsic record, which consistently uses “lens element” to mean a distinct lens structure with two surfaces. Defendants’ construction is consistent with both the plain meaning and the intrinsic record, and thus should be adopted.

B. “substantially uniform” / “substantially equal level of illumination” / “a uniformity . . . remains substantially unchanged” / “the uniformity of light . . . remains substantially the same”

These terms are indefinite based on their use of the term of degree, “substantially,” and the common specification’s contradicting descriptions of uniform / even illumination, which

would be irreconcilable by a POSITA.⁵ *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1345 (Fed. Cir. 2015) (finding “molecular weight” indefinite because the patentee used two different definitions of the term).

As a starting point, the patentee uses two conflicting descriptions to explain uniform or even illumination. First, the specification identifies “hot spots” or “dead spots,” as a problem with the prior art that is supposedly overcome by the claimed invention, and Ultravision adopts this concept as its construction for the terms at issue. ’410 Patent at 2:55-61; Br. at 16. And while the specification contrasts the presence of “hot spots” or “dead spots” with uniformity and equal illumination, it also goes on to say that “[w]hat is meant by ‘evenly’” in the context of illumination is “a 3:1 ratio of the average illumination to the minimum.” *See* ’410 at 5:14-16.⁶ The patent also calls this “3:1 uniformity.” *Id.* at 5:36. This 3:1 uniformity, however, would not alleviate the presence of hot spots or dead spots. As Dr. Josefowicz explains in unrebutted and uncontroverted testimony, “uniformity that achieves a 3:1 ratio of the average illumination to the minimum” inherently allows for hot spots and/or dead spots. Josefowicz Decl., ¶¶ 59-62.

Dr. Josefowicz’s opinions are consistent with common sense: A 3:1 difference in average to minimum illumination can be observed by turning the lights down to 1/3rd the brightness—a change any observer would notice. Josefowicz Decl., ¶ 62. Further, because the ratio compares the minimum to an “average,” as opposed to a maximum, the 3:1 ratio can be achieved with the

⁵ While the Court issued a preliminary construction for some of these terms in the *Lamar* case, the Court is not bound by its prior preliminary constructions, particularly where, as here, new evidence and argument are presented. *See, e.g., Texas Instruments, Inc. v. Linear Techs. Corp.*, 182 F. Supp. 2d 580, 589–90 (E.D. Tex. 2002); *Burns, Morris & Stewart Ltd. P’ship v. Masonite Int’l Corp.*, 401 F. Supp. 2d 692, 697 (E.D. Tex. 2005). Here, the Court is considering for the first time, the ’410 Patent’s inconsistent use of the term in the specification, Defendants’ uncontested expert testimony and Plaintiffs’ new extrinsic evidence.

⁶ Dependent claims 4-5 of the ’410 patent, likewise, specify a “3:1” average to minimum illumination. *See also* ’410 Patent at Claim 20.

presence of a single absurdly bright, but small hot spot. Josefowicz Decl., ¶ 65. While this example is likely uncommon for billboards, it clearly demonstrates why a POSITA would understand the specification to include two conflicting descriptions, if not definitions of even and uniform illumination, *i.e.*, the absence of hot spots and dead spots on the one hand, and a 3:1 ratio of the average illumination to the minimum, on the other. Tellingly, neither Ultravision nor its expert disputes that a 3:1 ratio of average illumination to minimum illumination allows hot spots and dark spots, as explained by Dr. Josefowicz.

Industry publications further confirm Dr. Josefowicz's opinions. For example, the Outdoor Advertising Association of America (OAAA) LED Lighting Guidance for Outdoor Advertising Owners and Operators, states that a uniformity of **2:1 minimum-to-maximum** ("E.G., adjacent measurements of 150 and 300 lux") is the "starting point ... sufficient to satisfactorily illuminate the display under normal conditions, and with no hot spots ... visible to the naked eye at typical viewing distances during a typical viewing interval." *See* Josefowicz Decl., ¶ 63; OAAA at 2588. Thus, while the patent allows for the **average** brightness to be **three** times the minimum brightness and still be "evenly illuminated," it was understood in the field that limiting the **maximum** brightness to just **two** times the minimum brightness is the "starting point" to prevent hot spots. Dr. Coleman does not dispute this and even relies on the same passage noting that the OAAA guidance recommends meeting "three sets of illumination values" to avoid "hot spots." Coleman Decl., ¶ 81. Even more telling, the Lighting Handbook, relied upon by Dr. Coleman (Coleman Decl., ¶ 83) proposes using an illuminance ratio of **3:1 to highlight features** in the foreground and draw the viewer's attention away from the darker background, *i.e.*, to create a hotspot on the featured image. *See* Josefowicz Decl., ¶ 62; IES 10th at 12.7.

A POSITA simply could not reconcile the patents’ disclosures, which both precludes (’410 Patent at 2:49-64) but inherently allows (’410 Patent at 5:14-16) hot spots on a “uniformly” illuminated surface. Josefowicz Decl., ¶54. The contradictory description of these terms in the intrinsic evidence renders them indefinite. *See, e.g., Teva* at 1345; *see also, e.g., Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 911, (2014) (“[W]e hold that a patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”).

Moreover, the patentee’s addition of the term “substantially” to qualify the amount of illumination exacerbates the problem because the specification does not provide any guidance for understanding the degree to which the light intensity across the entire display surface may depart from “uniform” and still be “substantially uniform.” There are no “objective boundaries” yielding “some standard for measuring that degree,” such that a skilled artisan cannot determine when infringement occurs. *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014); *see also Geodynamics, Inc. v. Dynaenergetics US, Inc.*, No. 2:15-CV-1546-RSP, 2016 WL 6217181, at *15 (E.D. Tex. Oct. 25, 2016) (finding “substantially equal to the total depth of penetration/(the tunnel)” indefinite because specification disclosed only depths that are “equal,” not “substantially equal”).

While “terms of degree” such as “substantially” “are not inherently indefinite,” a patent, read in view of the prosecution history, “must provide ‘some standard’ for measuring that degree such that the claim language ‘provide[s] enough certainty to one of skill in the art when read in the context of the invention’” and must provide “objective boundaries” so one can determine whether they are infringing. *GE Lighting Sols., LLC v. Lights of Am., Inc.*, 663 Fed. App’x 938,

940–41 (Fed. Cir. 2016) (citations omitted) (holding the term “elongated” indefinite); *see also Interval Licensing*, 766 F.3d at 1371. There are no such “objective boundaries” here.

Contrary to Ultravision’s assertion (Br. at 17-18), this Court’s holding in *Max Blu Techs.*, 2016 WL 3688801, does not support Ultravision’s position. The issue in *Max Blu Techs.* was “whether the term [substantially flat and coplanar] is an uninformed term of degree that renders the claims indefinite.” *Id.* at *27. In *Max Blu Techs.* this Court identified multiple passages which “similarly describe” “[t]he degree to which the land tops are level and coplanar,” and thus held the term definite. *Id.* Here, the issue is whether the patent’s contradictory descriptions of the claim term renders the term indefinite—they do. Moreover, the ’410 patent provides no “guidance for understanding the degree” of uniformity because it cannot reconcile the contradiction. *Id.* at *28 (requiring, for claimed terms of degree, that the “patent provide some objective standard for measuring the degree”) (citing *Biosig. Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015)). Therefore, the additional term of degree only adds to the failure to inform a POSITA of the invention’s scope.

C. “substantially transparent”

The term “substantially transparent,” not previously considered by this court, is also indefinite. The transparency of a substrate is a critical design element of optical lenses used in LED lighting products to direct LED radiation. Josefowicz Decl, ¶¶ 28, 31. Ultravision agrees, acknowledging that “precise light control” is an object of the invention. Br. at. 9. Because of its importance in design, a POSITA has at his disposal a multitude of techniques to determine the level of transparency of a lens substrate. Josefowicz Decl., ¶ 31. Given that minor variations in transparency must be accounted for in optical design, a POSITA would expect the specification to provide guidance as to how transparent is substantially transparent because there is no industry standard for determining what it means to be “substantially transparent.” *Id.*, ¶ 32. Despite the

clear technical implications, the terms “transparent” and “substantially transparent” only appear in three passages of the specification, and are never explained. *See* ’410 Patent at Abstract, 1:21-25, 5:26-29. In the absence of an objective standard against which substantial transparency can be measured, a POSITA using a substrate material that deviates from a transparent substrate by passing, for example, 95% of the light, would not know whether it qualifies as “substantially transparent.” *Id.*

Ultravision argues around this lack of disclosure by ignoring “substantially” and asserting that the proper construction of this term is “clear,” which is a synonym for transparent. *See* Merriam-Webster at 1330 (identifying “clear” is a synonym for “transparent”); *see also* Josefowicz Decl. ¶ 33. Ultravision does not construe “substantially” in the context of the disputed term because it cannot. As evidence of this, neither Ultravision nor its expert are able to articulate a meaning of “substantially transparent” that is anything different than the meaning of “transparent.”

For example, Ultravision and Dr. Coleman argue that “substantially transparent” simply “refers to the substrate ... being transparent.” Br. at 6; Coleman Decl. ¶ 34 (“[T]he use in the claims of the term ‘substantially transparent’ refers to a transparent, as opposed to scattering, optical element.”). In addition, Dr. Coleman identifies a definition of “transparent” that allows for “appreciable scattering” of light, but inexplicably asserts that the use of “appreciable” in the definition of “transparent” somehow accounts for “substantially” in the claim:

This understanding of “transparent” is consistent with its dictionary definition. For example, Merriam-Webster’s Collegiate Dictionary (11th ed. 2004) defines the word as “having the property of transmitting light without *appreciable* scattering so that bodies lying beyond are seen clearly.” Merriam-Webster at 1330. ***In my opinion, the use of the word “substantially” in the claims of the Patents-in-Suit is consistent with the definition’s use of the word “appreciable.”*** Both convey to a person of ordinary skill in the art that a material can be considered to be transparent even if some slight scattering or change to the light occurs.

Coleman Decl. ¶ 36 (emphasis added); *see also* Coleman Decl. ¶ 37 (acknowledging that “substantially” is also subsumed by the Illuminating Engineering Society (IES)’s The Lighting Handbook definition of “transparent”) (IES 10th at 1.21). Significantly, however, Ultravision does not use the term “appreciable” in its proposed construction, likely because it adds more uncertainty to the term. Words used to define “transparent” itself cannot define “substantially” in the context of “substantially transparent.” Ultravision’s attempt to read “substantially” out of the claim to save it from indefiniteness should be rejected, since it would raise the question as to what claim terms are actual limitations, and which terms can be ignored. *Bicon*, 441 F.3d at 950 (“Allowing a patentee to argue that physical structures and characteristics specifically described in a claim are merely superfluous would render the scope of the patent ambiguous, leaving examiners and the public to guess about which claim language the drafter deems necessary to his claimed invention and which language is merely superfluous, nonlimiting elaboration.”).

Ultravision attempts to recast Defendants’ argument as one that solely lies in what “transparent” alone might mean. Br. at 9, 10. That is not the case. As Dr. Josefowicz recognized, there are varying levels of transparency such that qualifying it with “substantially” without providing guidance on how opaque the substrate can be renders the term indefinite. Josefowicz Decl., ¶ 29. Moreover, Ultravision’s reliance on *Max Blu Techs.* is again misplaced because the disclosures for the patent at issue in that case “provide a standard for measuring [the] degree” “to which the land tops are level and coplanar...” *See Max Blu Techs.* at *28 (citing *Biosig Insts., Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015)). The intrinsic record here provides no such guidance. Ultravision’s discussion of *Bridgelux* is similarly flawed because it misinterprets that Court’s holding. Br. 8 (citing *Bridgelux, Inc. v. Cree, Inc.*, C.A. 9:06-cv-240, 2008 WL 2325623, at *7 (E.D. Tex. June 3, 2008)). Significantly, the term

“substantially transparent” was *not* construed; rather, the construed term was “transparent” and neither party argued construction of the larger term “a substantially transparent substrate.”

Because a POSITA would be left with unreasonable uncertainty as to how transparent is substantially transparent and it is not possible to articulate a construction that provides meaning to all the terms, the claim is indefinite. *See, e.g., Theta IP LLC v. Samsung Elecs. Co.*, No. 2:16-CV-527-JRG-RSP, 2017 WL 2444715, at *14 (E.D. Tex. June 6, 2017) (rejecting Plaintiff’s proposed construction because it “fails to give meaning to the claim language that requires (emphasis added) ‘a signal, that is *substantially* the desired signal.’”) (emphasis in original) (citing *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006); *see also, e.g., Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.* 381 F.3d 1111, 1119 (Fed. Cir. 2004); *Dell Inc. v. Acceleron, LLC.*, 818 F.3d 1293, 1300 (Fed. Cir. 2016).

D. “substantially the entire display surface”

The term “substantially the entire display surface,” is another phrase that has not been previously considered by this Court, and is indefinite. The crux of the dispute is whether a POSITA can determine the metes and bound of “substantially” as a descriptor of the entire display surface in the context of the patents. Tellingly, Ultravision and its expert do not articulate what is “substantially the entire display surface.”

As the parties’ respective tutorials demonstrate, a primary goal of the alleged invention is to provide uniform illumination over the entire display surface of a billboard, while at the same time avoiding light pollution resulting from light spillage off the display surface. ’410 Patent at 2:49-64. The patentee proposes to meet this goal by using an optics panel with a configuration of LEDs and optical elements designed to provide even illumination across the entire display surface. In contrast, the claims diverge from the specification by permitting illumination across only “substantially” the entire display surface. But what constitutes substantial in this context is

never explained in the intrinsic record. *See Geodynamics, Inc. v. Dynaenergetics US, Inc.*, No. 2:15-cv-1546, 2016 WL 6217181, *15-16, (E.D. Tex. Oct. 25, 2016) (finding term indefinite when the intrinsic record failed to inform a POSITA “when the clear tunnel depth is no longer “substantially equal” to the total depth of the tunnel.”). Indeed, after analyzing every passage of the specification that relates to the illumination of the display board, Dr. Josefowicz observed that none provides the necessary “guidance in the field of lighting on which a POSITA would rely to assess how much of a display surface must be illuminated to qualify as ‘substantially the entire display surface.’” Josefowicz Decl., ¶ 36; *see also Id.*, ¶¶ 38-42 (citing ’410 Patent at Abstract, 5:36-38, 5:46-48, 5:50-64, 5:65-6:4, 6:44-47, 2:23-27, 5:21-25, 6:12-20, 6:23-30, 1:25-29). The lack of “objective boundaries” here renders the term indefinite because it leaves the POSITA with unreasonable uncertainty as to how much of the display surface needs to be illuminated. *Interval Licensing*, 766 F.3d at 1371; *Geodynamics*, 2016 WL 6217181, at *15.

Consistent with this conclusion, Ultravision fails to identify any specific disclosure in the intrinsic record that would inform a POSITA with reasonable certainty the scope of “substantially the entire display surface.” Rather, Ultravision cites a single passage from the specification that describes the illumination of the “entire surface” (without explaining what is “substantial”) and misstates and argument it made during prosecution regarding “spot illumination.”⁷ Br. at 13 (citing from ’410 Patent at 5:4-25), Br. at 14 (citing ’410 Amend.).

Ultravision’s only support for its position is its expert’s opinion that specific uncertainties are covered by “substantially” in the claim, but those opinions actually confirm the “zone of uncertainty” surrounding the claim. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898,

⁷ The June 5, 2014 Amendment does not distinguish the claimed invention from “spot illumination” but simply challenges the motivation to combine references using different illumination techniques. ’410 Amend. At 10-11.

911, (2014). In particular, Ultravision asserts that “the adjective ‘substantially’ provides for instances in which an LED may not necessarily provide even illumination in some insubstantial portion of the display, such as portions of the trim of the display for example, whether due to, for example, design tolerances, manufacturing tolerances or imperfections, or installation issues.” Br. at 13 (citing Coleman Decl., ¶ 41). But this claim term is not directed to components of a machine for which it would be appropriate to have design and manufacturing tolerances. And, as Ultravision’s expert admits, there are *no industry standards* for illumination tolerances, imperfections and installation issues, and therefore, these provide no guidance to inform a POSITA of the bounds of “substantially the entire display surface.” Specifically, Dr. Coleman admitted that:

- “design tolerances” are company specific, and while one company may allow for some design tolerance another may design for no tolerance (Coleman Depo. at 64:18-65:5);
- manufacturing tolerances “can vary from company to company” (*Id.* at 67:20-69:8);
- there are no standards as to allowable imperfections (*Id.* at 69:9-16); and
- “installation issues” are simply mistakes during installation, not a standard across the industry (*Id.* at 69:22-70:15).

Thus, while certain imperfections and tolerances might be acceptable to one POSITA (meaning that “substantially the entire display” *is* illuminated), another POSITA may determine them to be unacceptable (meaning that “substantially the entire display surface” is *not* illuminated). When two POSITAs would disagree about what falls within the scope of the claim, that claim is indefinite. *HZNP Medicines LLC v. Actavis Labs. UT, Inc.*, 940 F.3d 680, 697 (Fed. Cir. 2019) (finding a term when “a POSITA would not know under what standard to evaluate” the term).

Dr. Josefowicz’s testimony (which Ultravision misstates) also demonstrates that a POSITA cannot know the metes and bounds of “substantially the entire display surface.” Ultravision argues that Dr. Josefowicz’s ability to determine whether “substantially the entire

display surface” in one situation confirms that the term would have been understood to a POSITA. Br. at 14. But Dr. Josefowicz’s testimony to which Ultravision cites, merely recognized one situation where the term might be understood—that by illuminating the “the entire display surface” at least “substantially the entire display surface” is illuminated. Indeed, Dr. Josefowicz’s complete response identifies that not only is the display “fully lit” to the “white border,” but that there is significant spillage of light beyond the border such that the pole holding the sign is also lit. Josefowicz Depo. at 169:11-15 (“Q. Is substantially the entire display surface lit? . . . THE WITNESS: It looks like it because the white border is fully lit, yeah. By the way, it's fully lit, but look how much light is hitting the pole.”). In other words, the question posed to Dr. Josefowicz avoided the “zone of uncertainty” in the claim term—*i.e.*, anything less than the entire display surface—which exists regardless of whether a POSITA could recognize the entire surface to be illuminated. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. at 911.

Finally, Ultravision makes a collection of irrelevant arguments. Ultravision’s description of each LED’s “even” illumination of the “entire display surface” is not relevant because it does not address what is meant by “**substantially** the entire display surface,” and improperly reads the word “substantially” out of the claim. *Theta IP*, 2017 WL 2444715, at *14; *Bicon*, 441 F.3d at 950. And Ultravision’s purported “technical purpose, preventing the display surface from uneven lighting in the event of an LED failure,” in no way informs a POSITA of the scope of the term. Br. at 14. Indeed, nothing in the claim suggests that the entire display surface needs to be illuminated when all LEDs are operating, and only “substantially the entire display surface” needs to be evenly illuminated otherwise. For this same reason, Ultravision’s reliance on *Max Blu Techs.* is again misplaced. *Supra* § IIC.

E. “substantially no illumination” / “areas beyond edges . . . receive substantially no illumination”

The term “substantially” as a descriptor of “no illumination” is again an indefinite term of degree. In the *Lamar* case, this Court equated “substantially no illumination” with “no illumination” in its preliminary construction. *Lamar* Constr. at 1. Here, additional evidence and arguments weigh in favor of an indefinite construction.

First, as Ultravision acknowledges, this term relates to avoiding “light pollution” that results from light extending beyond edges of a display. Br. at 19. But what constitutes light pollution (or light trespass) is purely subjective and will mean different things to different people. For example, IES RP-33-99 explains that light pollution or trespass is “extremely subjective”:

Since light trespass is extremely subjective, there is no single set of values/limits that will work in every situation....[The *Light Trespass Research*] report also stresses the subjectivity of the research and how it may be affected by the personalities and desires of different individuals.

* * * *

While these recommendations serve to reduce serious light trespass, their implementation is not a guarantee against objections.

IES RP-33-99 at 12; *see also Id.* at 47 (referencing subject criteria to describe light trespass, *i.e.*, “annoyance, discomfort, distraction ...”).

Given the highly subjective nature of light pollution, the claims and/or intrinsic record needs to provide guidance as to what it means to have substantially no illumination beyond the edges of the area. The patent, however, does not provide this guidance (as confirmed by the lack of any such citation to the patent by Ultravision in its brief). *SiOnyx, LLC v. Hamamatsu Photonics K.K.*, 270 F. Supp.3d 390, 09 (D. Mass. 2017) (“Courts generally avoid assigning ‘a meaning to a patent claim that depends on the state of mind of the accused infringer.’”) (quoting *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1353 (Fed. Cir. 2001)).

Due to this subjective nature of the term and the lack of guidance in the patent, a POSITA making a device would not know when a product is infringing. This is particularly true in view of Ultravision’s expert concessions that whether there is an insubstantial amount of light will depend on both the location and the environment in which the claimed optics panel and billboard are used. Coleman Depo. at 83:23-89:11. For example, Ultravision’s expert explains that the environment of the display affects whether the amount of light going beyond the edges is considered substantial. *Id.* at 83:23-84:15. In other words, a POSITA would not know if a product meets this limitation until after a particular environment is selected for its use. In Dr. Coleman’s example above, a “display adjacent to a hotel room ... with a child’s window, it wouldn’t take much to be a problem or substantial, whereas, in an urban environment ... with high ambient illumination levels that would perhaps not be considered substantial.” *Id.*

Therefore, not only does infringement depend on where the display installed, but may also change with the conditions of the environment, including who might be in the vicinity at a given time. Claim language such as that used in this phase is indefinite when it is not “sufficiently precise to permit a potential competitor to determine whether or not he is infringing.”

PureChoice, Inc. v. Honeywell Int’l Inc., No. 2:06-CV-244, 2008 WL 190317, at *7 (E.D. Tex. Jan. 22, 2008) (quoting *Morton Int’l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1470 (Fed. Cir. 1993)).

F. “minimal amount of illumination” / “areas beyond edges . . . receive minimum illumination”

These terms should be found indefinite for the same reasons as “substantially no illumination” and “areas beyond edges . . . receive substantially no illumination” because these terms substitute one term of degree, “minimal”, for another, “substantially no.” Because the

patent fails to provide any standard for measuring that degree, those terms are indefinite. *Biosig Instruments, Inc., v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015).

With respect to Ultravision’s arguments that are unique to this term, the intrinsic evidence Ultravision cherry-picks is simply aspirational statements. “[A]reas beyond the edges 112, 114, 116, and 118 would receive no illumination at all or at least a minimal amount of illumination” and “light that does not strike the surface 102 is wasted and may create problems (e.g., light pollution)” (Br. at 23) offer no objective standard for what constitutes minimal illumination. In fact, nothing in the specification even links the existence of “light pollution” or “wasted illumination” to the terms “minimal amount of illumination,” “areas beyond edges . . . receive minimum illumination” – let alone provides any guidance as to how little light spillage is required to satisfy these claim limitations.

Ultravision’s heavy reliance on industry publications on light trespass is similarly misplaced. For example, Ultravision conveniently ignores IES’s express warning against adopting a set of universal recommended light trespass limitations because the individual observers may find the same light trespass test results objectionable or not objectionable at all. Josefowicz Decl., ¶ 71; IES TM-11-00 at 4-5 and 8. Moreover, the IES guidelines on which Ultravision relies are not even directed to the subject of the Patents-in-Suit, i.e., billboards and signs. They are directed to light spillage across property lines in connection with local ordinances and, thus, have little to no relevance. Josefowicz Decl., ¶ 71; D.I. IES TM-11-00 at 7. Finally, Ultravision admits that the IES guidelines are different depending upon where the device may be located at any given time (“different light trespass requirement apply to different areas”), or what time of day or night it is. Br. at 22. That supports Defendants’ argument – a claim is indefinite if a product may infringe it sometimes, but not others, depending on circumstances

outside the four corners of the claim. Ultravision's proposed construction cannot be correct because it fails to inform a POSITA as to which guideline is to be used, *e.g.*, for what area or time of day, is intended as the standard.

Finally, Ultravision pleads for the Court to reconsider its previous indefinite determination on the basis that Ultravision is now arguing a construction centered around the concept of "light trespass," rather than "light pollution." Br. at 21. Yet, Ultravision admits that light pollution and light trespass are the same. *Id.* at 21-22 (citing its own expert as opining that the sentence in the '410 patent referring to "light pollution" (2:61-64) would have been understood by a POSITA to mean "light trespass").

For the foregoing reasons, the terms "minimal amount of illumination" and "areas beyond edges . . . receive minimum illumination" are indefinite. Neither the specification, prosecution history, nor cited extrinsic evidence provide a person of ordinary skill in the art with reasonable certainty as to the bounds of the claim scope.

G. "[optics panel is configured to be attached to] a heat sink comprising a power supply enclosure disposed on the heat sink"

The crux of this dispute is how to resolve the claims' inherent ambiguity arising from their recitation of a "heat sink comprising a power supply enclosure disposed on the heat sink." On its own, this phrase would not be reasonably certain to a POSITA because it requires: (i) a heat sink that comprises a heat sink and (ii) a heat sink that both comprises a heat generator, *i.e.*, the power supply enclosure, and has the power supply enclosure disposed on it. To resolve this uncertainty, Defendants propose a construction that is aligned with the intrinsic record and clarifies that the heat sink dissipates heat from the optics panel to which it is attached in the claim.

For context, the '410 and '413 Patents identify heat dissipation as a problem with prior art "LEDs in an exterior lighting environment." '410 Patent at 2:65-67. The '410 and '413 Patents first propose to solve that problem by attaching a back panel (or back surface) with an increased surface area to a panel of LEDs so as to dissipate heat. '410 Patent at 3:18-21, 3:64-4:3. In other words, the back panel with increased surface area will be a heat sink.

The '410 and '413 Patents further propose to solve that problem by "separating the power supply from the back panel," to "aid in heat dissipation by the back panel as it does not have to dissipate heat from the power supply to the same extent." '410 Patent at 7:12-16. As described in the specification,

The lighting assembly 600 is also illustrated with a mounting plate 606 that couples to the back panel 602 and to an adjustable mounting bracket 608. . . . A power supply enclosure 610 may be coupled to the mounting plate 606 and configured contain a power supply (not shown) capable of supplying power to LEDs of the LED assemblies 800. It is noted that separating the power supply from the back panel 602 may aid in heat dissipation by the back panel 602 as it does not have to dissipate heat from the power supply to the same extent as if the power supply was mounted directly to the back panel 602.

'410 Patent at 7:4-16. This configuration is depicted in Figure 6C, which is the claimed embodiment, as Ultravision concedes. Br. at 24. A POSITA would unmistakably understand that the heat sink of Figure 6C is dissipating heat from the LEDs of the optics panel to which it is attached. Likewise, a POSITA would understand that the power supply enclosure is disposed on the heat sink of Figure 6C, as claimed and as Dr. Coleman agrees. Coleman Depo at 119:10-15 ("The power supply enclosure disposed on the heat sink? . . . A: The power supply enclosure in that embodiment is disposed on the heat sink."). In other words, the Figure 6C embodiment is consistent with the claim limitation, as construed by Defendants and analyzed by Dr. Coleman.⁸

⁸ In contrast, Figure 3B is not a claimed embodiment because, as Dr. Coleman confirmed, Figure 3B does not include a heat sink that includes a "power supply enclosure." Coleman Depo. at 113:24-114:2

Despite the apparent agreement between Defendants and Ultravision’s experts, Ultravision argues that this limitation should not be construed to make clear that the heat sink dissipates heat from the optics panel. Ultravision’s motivation is clear – its infringement theory is premised on this limitation being satisfied by a metal plate adjacent to the power supply, but that is distant from the LEDs and cannot dissipate heat from them. In other words, Ultravision’s application of the “plain and ordinary meaning” of this limitation is that all of the components of a lighting assembly are “attached” to the optics panel, even if they are not directly attached to each other, and that the heat sink need not dissipate heat from the optics panel, that includes LEDs. Not only is Ultravision’s application of the claim divorced from the specification and the rest of the claim, it leaves open the question of how can a “heat sink” comprise (*i.e.*, include) an element (*e.g.*, a power supply enclosure which is a heat generator) and still be characterized as a heat sink? Josefowicz Decl. at ¶ 88 (a POSITA would understand that there are two primary sources of heat during the operation of a LED luminaire. One source is the power supply . . .). Defendants’ construction resolves the parties *O2 Micro* dispute and clarifies that uncertainty that would exist in the absence of a construction, thereby, rendering the claims indefinite. *See O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360-1361 (Fed. Cir. 2008) (“A determination that a claim term ‘needs no construction’ or has the ‘plain and ordinary meaning’ may be inadequate when a term has more than one ‘ordinary’ meaning or when reliance on the term’s ‘ordinary’ meaning does not resolve the parties’ dispute.”).

H. Preambles: “An optics panel for use in a light emitting diode (LED) lighting assembly comprising” / “An optics panel for use in a light emitting diode (LED) lighting assembly for illuminating a billboard that has a display surface extending between outer edges of the billboard, the optics panel comprising”

As an initial (and dispositive) matter, the preambles are limiting because the claim bodies depend on them for antecedence. *See C.W. Zumbiel Co., Inc. v. Kappos*, 702 F.3d 1371, 1385

(Fed. Cir. 2012). Here, the preambles provide antecedent basis for (i) “the lighting assembly” in the bodies of Claims 1, 6, 15 and 21 of the ’410 patent; and (ii) “the billboard” and “the display surface” in the bodies of Claim 10 of the ’410 Patent and claims 1, 5 and 11 of the ’413 patent.

Ultravision mistakenly argues the “lighting assembly,” “billboard” and “display surface” are not part of the “claimed invention” in the patents because (according to Ultravision) they are just structures with which the claimed invention are used. Br. at 26-27. Ultravision’s position, however, is inconsistent with the law. In *C.W. Zumbiel*, the preamble provided for an “enclosed carton for carrying a plurality of containers” and then referred to “the containers” in the claim body. 702 F.3d 1385. Although the claimed invention was the carton (and not the containers in the carton), the Federal Circuit held—on antecedent basis alone—that the preamble was limiting. *Id.* Similarly, in *Pacing Techs., LLC v. Garmin Int’l, Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015), the Federal Circuit found “user” in the claim preamble a limitation because it provided antecedent basis for “user” in the body of a dependent claim even though the “user” unquestionably was not part of the claimed invention (“[a] repetitive motion pacing system”).

Moreover, Ultravision’s position is contradicted by positions it took during prosecution. For example, during prosecution, Ultravision distinguished the prior art based on the following limitations: “the light from each lens element is directed across the entire **display surface of the billboard**,” “the light intensity from each lens element is substantially uniform across the entire **display surface**” and “display surface.” Similarly, Ultravision distinguished the prior art based on multiple limitations involving both the “billboard” and “display surface” limitations. In particular, Ultravision relied on the following preamble limitation of claim 10 of the ’410 to distinguish the prior art: “**display surface** extending between outer edges of the **billboard**.” ’410 Amend. at pp. 10-11. This further confirms that the preambles including the “billboard” and

“display surface” limitations are limiting. *See Microsoft Corp. v. Commonwealth Sci. & Indus. Research Org.*, 572 F. Supp. 2d 786, 797–98 (E.D. Tex. 2008) (citing *Computer Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1375 (Fed. Cir. 2008)) (finding preamble limiting because the applicant emphasized wireless LAN operable in a small room during prosecution). Additionally, the “billboard” is an essential structure to the claimed. *Poly-Am., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (holding that “blown-film” in the preamble was limiting because the specification referenced the invention as a “blown-film” liner)

The specification is replete with references to billboards, LEDs, and lighting assemblies. For example, the abstract of both the ‘410 and ‘413 Patents provide “[a] substantially transparent substrate is disposed over the plurality of LEDs and configured to direct light from each of the plurality of LEDs of the lighting assembly onto a surface having a predetermined bounded area.” ’410 Patent at Abstract; *see Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1573 (Fed. Cir. 1996) (finding the preamble limiting as it included the stated purpose of the invention in the specification). Both the ‘410 and ‘413 Patents state “some embodiments may direct substantially all illumination from a lighting assembly 110 evenly across the surface 102 while some illumination is not evenly distributed.” ’410 Patent at 6:12-15; ’413 Patent at 6:19-22. The “lighting assembly” is an essential structure of the claimed invention because it is through the “lighting assembly” that the light from the LEDs is directed to a display surface.

Similarly, both patents state “the entire surface 102 of the billboard 100 may be illuminated even when an entire lighting assembly 110 has malfunctioned . . . due to the redundancy provided by configuration of the lighting assemblies 110.” ’410 Patent at 5:60-64; ’413 Patent at 5:67-6:4. The “billboard” is thus an essential structure of the claimed invention

because it is the billboard that the light from the lighting assembly is directed to. The preambles are therefore limiting based on recitation of “lighting assembly”, “LED”, “billboard” and “display surface.”

Finally, contrary to Ultravision’s argument (Br. at 27-28 (citing *Arctic Cat Inc. v. GEP Power Products, Inc.*, 919 F.3d 1320 (Fed. Cir. 2019))), the patentee has not defined a structurally complete invention in the claim bodies and used the preamble to state only a purpose or intended use. Instead, the preambles set forth important, fundamental, and defining characteristics of the claimed invention (as explained above). Critically, in *Artic Cat*, the preamble did not provide antecedent basis and was not used to distinguish art. 919 F.3d at 1329. As explained above, the preambles here provide crucial antecedent basis.

I. “display surface”

While not readily apparent from the proposed constructions, the dispute here relates to whether the claimed “display surface” to be illuminated are those of billboards and signs as described in the patent, or any surface, such street and sidewalk surfaces, which are the intended use for many of the accused products. The Patents-in-Suit are unquestionably limited to LED lighting for signs, as Ultravision argued in the *Lamar* case. Ultravision’s about-face on this issue should be rejected.

While the term “display surface” is not used in the common specification, the specification repeatedly and consistently identifies the “surface” to be illuminated as the surface of a billboard. *See e.g.*, ’410 Patent at 2:11-12 (“billboard 100 includes a surface 102 onto which a picture and/or text may be painted, mounted, or otherwise affixed”); 2:25-26 (“billboard 100 to illuminate some or all of the surface 102); 2:35 (“surface 102 of the billboard 100); 3:17-18 (“surface 102 of the billboard 100); 4:20 (“surface 102 of the billboard 100); 5:6 (“surface 102 of the billboard 100); etc. Because the patents “repeatedly and consistently characterize this claim

term in a particular way, it is proper to construe the claim term in accordance with that characterization.” *Wis. Alumni Research Found. v. Apple Inc.*, 905 F.3d 1341, 1351 (Fed. Cir. 2018), cert. denied, 140 S. Ct. 44 (2019). Notably, the patents never refer to illuminating a “surface” as anything other than illuminating a sign (*e.g.*, billboard) surface. Even in the two instances in which the patent suggests uses other than for billboards, the patent still makes clear that the invention is intended for externally illuminated signage (which includes billboards):

Although billboards are used herein for purposes of example, it is understood that the present disclosure may be applied to lighting for any type of sign that is externally illuminated.

’410 Patent at 2:6-9.

It is understood that various standard configurations of the lighting assembly 110 may be developed for various billboard and/or other externally illuminated signs so that a particular configuration may be provided based on the parameters associated with a particular billboard and/or externally illuminated sign.

’410 Patent at 6:47-52.

Notably, in the *Lamar* litigation (which involved some of the Patents-in-Suit, as well as other patents that share a common specification with the Patents-in-Suit), Ultravision agreed with Defendants’ position here:

The Patents-in-Suit relate to LED lighting assemblies for **billboards**. . . . Generally speaking, the asserted claims speak to the illumination of **billboards** with LED lighting assemblies. The asserted claims relate to the LED lighting assemblies used to light the **billboards** as well as the optical elements (*i.e.*, lenses) used in the LED lighting assemblies to create uniform illumination of the billboard surface. Additional asserted claims relate to the **billboards** including the LED lighting assemblies, and other claims relate to the methods used to illuminate the **billboards** using the LED lighting assemblies. The patented technology provides a number of benefits-both in the quality and economics of **billboard** lighting.

See Lamar Op. Br. at 1.

Ultravision’s primary argument is that “when the patentee wanted to claim a billboard-only application, it chose to do so.” Br. at 28. This contradicts Ultravision position in the *Lamar*

case and disregards the intrinsic record. In the *Lamar* case, for example, Ultravision asserted that claim 16 of the '413 Patent is limited to billboards even though it claimed illuminating a “display surface” but did not refer to a billboard. *Lamar Op. Br.* at 1; *see also Lamar Markman Tr.* at 44-45 (Ultravision counsel arguing that Lamar’s arguments relating to indefiniteness of claim 16 of the '413 patent based on “parking lot lights” were irrelevant because the patents address challenges of “billboard lighting” not found in parking lot lighting). Ultravision recognized in the earlier case that this claim was limited to billboards based on the “display surface” limitation, which is consistent with Defendants’ position here that a display surface is that of a sign, such as a billboard. Moreover, the fact that certain claims explicitly refer to a billboard and others refer to a display surface does not weigh against construing “display surface” to mean a sign surface, particularly because the patent only teaches illumination of a sign surface. *See IAP Intermodal, L.L.C. v. Nw. Airlines Corp.*, CIV.A. 2:04-CV-65, 2005 WL 6217423, at *4 (E.D. Tex. Sept. 7, 2005) (holding that language not explicitly referred to in the claims may limit the scope where the specification has numerous examples of the concept).

Ultravision’s argument (*Br.* at 27-28 (citing *Continental Circuits LLC v. Intel Corp.*)) that if the specification only discloses a single embodiment, the features and functions of that embodiment should not be read into the claims is misplaced. *Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788 (Fed. Cir. 2019). Unlike in *Continental Circuits*, where the specification used exemplary language and was clear to avoid explaining the scope of the invention according to a particular embodiment (*id.* at 797), the Patents-in-Suit unmistakably describe each embodiment in terms of billboards and signs.

J. “area” / “rectangular area” / “rectangular region”

The issue with respect to “area”, “rectangular area”, and “rectangular region” is the same as the issue with respect to the display surface term, *i.e.*, is the area that of a sign OR any area,

such as the surface of a road? For the reasons explained in the previous section (II.I), this question is answered by the intrinsic record, which discloses lighting that addresses problems specific to billboard and signage LED lighting.

The written description focuses on billboard and externally illuminated signs. *See, e.g.*, '946 Patent at *passim* (directly or indirectly referring to billboard lighting in every figure; referring to billboard lighting throughout the specification). Nowhere do the patents suggest that they are applicable to any "area" besides the area of a sign or billboard. In fact, the only references to illuminated areas in the patent are to the "surface 102" of a billboard. *See* '946 Patent at 3:22-24, 3:31-33; 3:36-37, 3:45-47, 4:32, 5:37-38, 6:26, 7:15-16, 7:20-34, etc.

Importantly, many of the claims at issue in *Lamar* (some of which are asserted in the current case) do not explicitly refer to a "billboard" or a "sign" and yet Ultravision still characterized the claims as such, *See, e.g.*, '803 Patent at claim 3 ("illumination of an *area*" with no reference to a billboard).

Nevertheless, Ultravision incorrectly argues that the area terms should not be construed as a sign because the repeated references to billboards and signs are only statements of intended use. Br. at 28. In making this argument, Ultravision ignores the identification of problems particularly associated with billboard lighting and the disclosed solutions for resolving those billboard/signage-centric problems and the complete lack of any disclosure or suggestions that the lighting assemblies can be used for anything other than billboards and signs.

Likewise, the patent excerpts on which Ultravision relies do not support its argument. Specifically, the specification's reference to a "rectangular target area." *Id.* at 27 (citing '946 Patent at 6:30-34) refers to the "rectangular target area of the surface 102," which is the "surface 102 of the billboard 100." '946 Patent at 6:24-34 (emphasis added). Similarly, the excerpt at

8:52-9:58 (describing Figures 7A-B, 8A-8J, and 9) explains that those figures are more detailed features of Figures 2 and 6A-C, all of which are more detailed figures of the lighting assembly used to light the billboard of Figure 1. *Id.* at 2:42-3:5.

Ultravision would have this Court err by considering the area terms in a vacuum and without the context of the intrinsic record. But, as this Court is aware, even if a term is to be given its plain and ordinary meaning, that plain and ordinary meaning is what would be understood by a POSITA in the context of the specification and prosecution history. *Trustees of Columbia Univ. in City of N.Y. v. Symantec Corp.*, 811 F.3d 1359, 1363-66 (Fed. Cir. 2016) (finding that claim terms are read in view of the specification and their use in the specification can limit the terms, even in the absence of an express disavowal or lexicography); *see also*, *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 Fed. Cir. 2005) (claim terms are to be construed in the context provided by the specification). The “construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.” *Trustees of Columbia Univ.*, 811 F.3d at 1363 citing *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). Accordingly, a POSITA would have turned to the common specification to understand that term and a POSITA would understand that the claimed area in the context of the Patents-in-Suit is a sign to be illuminated. Defendants’ construction is consistent with the plain meaning and the intrinsic record, and Ultravision has not identified any evidence to the contrary.

K. “predetermined bounded area”

The crux of the parties’ dispute is whether a predetermined bounded area can be defined by the light emission pattern of the claimed optics panel, as Ultravision contends. Br. at 29-30. While Ultravision asserts plain meaning is applicable, its brief confirms that its interpretation of the claim is not the plain meaning.

Defendants’ construction of this phrase (“a bounded region that exists independent of light from the claimed LEDs”) is rooted in the language of claims 1 and 10 of the ’410 Patent. The claims use the subject phrase to describe a “display surface having a predetermined bounded area.” In order for the area of the display surface to be “predetermined,” it must be something that pre-exists without the light; it cannot be an area that is arbitrarily defined such that it will fit whatever illumination pattern happens to be created by a light source. If it were such an arbitrarily defined area, it simply would not be predetermined. For example, the size and shape of the illumination pattern would depend on the distance between the light and the area to be illuminated, other lights near the area to be illuminated (*i.e.*, interfering light sources, such as street additional lights that would impact the light on the ground), and any residual daylight that illuminates the area. Ultravision’s interpretation of the claim would create a situation where infringement would depend on environmental factors outside the scope of the claim.

Moreover, Ultravision’s interpretation is contrary to the claim language. The claims unequivocally state that it is the display surface that has the predetermined bounded area. If, as Ultravision asserts, it were the illumination pattern that defines the predetermined bounded area, the claims would have referred to a “predetermined bounded illumination pattern of light.” In this regard, Ultravision’s example of a “portion of the highway that is the ‘display surface’” is a red herring because a stretch of highway is not a display surface. But even assuming that a highway may be a display surface, the display surface would be the entire highway, not some arbitrary portion a light is directed to such that any light would necessarily have a “predetermined bounded area” that meets the claim.

L. “desired uniformity ratio”

It is beyond dispute that “desired” is a term of degree. Here, it is also indefinite because the patent fails to provide any standard of measure to determine the objective boundaries for

what “desired” means in the context of the claim. *Liberty Ammunition, Inc. v. United States*, 835 F.3d 1388, 1396 (Fed. Cir. 2016); *see also Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1374 (Fed. Cir. 2014) (affirming district court’s finding that “unobtrusive manner” was indefinite because it leaves the meaning to the “unpredictable vagaries of any one person’s opinion”). This Court has also ruled subjective terms of degree indefinite in various cases. *See, e.g., Vstream Techs., LLC v. PLR Holdings, LLC*, No. 6:15-cv-974-JRG-JDL, 2016 WL 6211550, at *8 (E.D. Tex. Sept. 27, 2016) (Love, J.) (finding “sufficiently correct” and “not sufficiently correct” indefinite), report and recommendation adopted, No. 6:15-cv-974-JRG-JDL, 2016 WL 6159624 (E.D. Tex. Oct. 24, 2016) (Gilstrap, J.); *Cypress Lake Software, Inc. v. Samsung Elecs. Am., Inc.*, 382 F. Supp. 3d 586, 610 (E.D. Tex. 2019) (Kernodle, J.) (finding “more convenient” and “permits a user to conveniently enter” indefinite), reconsideration denied, No. 6:18-cv-30-JDK, 2019 WL 4935280 (E.D. Tex. Aug. 23, 2019) (Kernodle, J.).

Just as in *Vstream Techs.*, the term “desired” appears nowhere in the specification. 2016 WL 6211550, at *7. Similar to *Vstream Techs.*, Ultravision’s own expert opines that what is “desired” depends on the “manufacturer’s instructions, guidelines, and/or recommendations.” Coleman Decl., ¶ 84. The only conclusion this Court should draw is that an individual designer’s subjective decision determines what is “desired” and thus the term is indefinite. *Vstream Techs.*, 2016 WL 6211550, at *8.

Further, as Ultravision acknowledges, Claim 5 of the ‘410 Patent recites that the uniformity ratio must be 3:1. Br. at 30.⁹ Thus, claim differentiation mandates that the “desired”

⁹ The ‘410 Patent describes that “evenly” is “that illumination with a uniformity that achieves a 3:1 ratio of the average illumination to the minimum.” ‘410 Patent at 5:14-16. Thus, the ideal ratio of 3:1 of the average illumination to the minimum is where “the rectangular target area of the surface 102 would be evenly illuminated by the LED 416.” *Id.*, 5:10-11. This Court has

ratio recited in Claim 4 (the claim at issue) must be different, and broader, than ideal 3:1 described in the specification. *See Karlin Tech., Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971–72 (Fed. Cir. 1999) (“the common sense notion that different words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope.”) Yet nothing in the ’410 Patent discusses or supports any other ratio or even suggests which direction the ratio should move, *e.g.*, down to 2:1 or up to 4:1, to still be within the scope of the alleged invention. Without any standard to go by, and as admitted by Ultravision, the term “desired” is nothing more than the unbounded whim of the designer. *See, e.g.*, Br. at 30 (“‘desired uniformity ratio’ is the uniformity ratio desired by the designer of the apparatus”). However, such a construction would essentially write this limitation out of the claim because every optics panel is inherently designed by a designer.

Ultravision further emphasizes that Claim 3 requires that each LED has a particular illumination profile. *Id.* at 30. But nothing about “a particular illumination profile” offers any objective standard for a POSITA to apply to determine the scope of the “desired uniformity ratio.” Josefowicz Decl., ¶ 79.

For all of these reasons, Defendants respectfully submit that the term “desired uniformity ratio” is indefinite.

previously held the subjective term “desired” in a construction “threatens to confuse, rather than clarify, claim scope.” *Ramot at Tel Aviv University LTD. v. Cisco Systems, Inc.*, 2:19-CV-00225-JRG, 2020 WL 2517581, at *10 (E.D. Tex. May 15, 2020) (declining to read in a “desired” limitation that threatened to exclude less-than-ideal outcomes and clarifies little).

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that, on August 6, 2020, a true-and-correct copy of the foregoing was filed via the Court's CM/ECF system and served on all counsel of record. I further certify that this document is the unsealed version of the "sealed" document filed at Dkt. No. 97 on August 4, 2020.

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